



Calcium Fluoride

Careers in Chemistry: Dentistry

$$x \text{ atoms } F = 92.135 \text{ g CaF}_2 \left(\frac{1 \text{ mol CaF}_2}{78 \text{ g CaF}_2} \right) \left(\frac{6.02 \times 10^{23} \text{ molecules CaF}_2}{1 \text{ mol CaF}_2} \right) \left(\frac{2 \text{ atoms } F}{1 \text{ molecule CaF}_2} \right) = 1.42 \times 10^{24} \text{ atoms } F$$

$$x \text{ gallons H}_2\text{O} = 1.42 \times 10^{24} \text{ F atoms} \left(\frac{999,999 \text{ H}_2\text{O ml' cles}}{1 \text{ F atom}} \right) \left(\frac{1 \text{ mol H}_2\text{O}}{6.02 \times 10^{23} \text{ H}_2\text{O ml' cles}} \right) \left(\frac{18 \text{ g H}_2\text{O}}{1 \text{ mol H}_2\text{O}} \right) \left(\frac{1 \text{ ml H}_2\text{O}}{1 \text{ g H}_2\text{O}} \right) \left(\frac{1 \text{ L H}_2\text{O}}{1000 \text{ mL H}_2\text{O}} \right) \left(\frac{1 \text{ gallon H}_2\text{O}}{3.78 \text{ L H}_2\text{O}} \right)$$

Need 11,238 gallons of water needed to dissolve 91.235 g CaF₂ to yield a 1 ppm F¹⁻ solution.